

REMARKS

Claims 1-8 are pending, claims 1, 7 and 8 being independent claims.

The Office Action rejects claims 1-8 under 35 U.S.C. §103(a) over U.S. Patent No. 7,135,953 to Leitl in view of U.S. Patent No. 4,106,482 to Savage et al. This rejection is respectfully traversed.

Independent claim 1 is directed to a thermal trip device including a bimetal, wherein at least one part of the surface of the bimetal is made to be black.

Independent claim 8 is directed to a circuit breaker having a thermal trip device including a bimetal wherein the surface of the temperature measurement part of the bimetal is made to be black.

As discussed in Applicants' specification, the trip characteristic can be measured by measuring the bimetal temperature. In the measurement of the bimetal temperature, a no contact emission thermometer is commonly used. This is because that when a contact thermometer is used, deflection of the bimetal is generated due to contact load of a probe that changes the trip characteristic resulting in an inaccurate trip characteristic measurement. A no contact thermometer measures an object's temperature by detecting an amount of emission energy of infrared rays emitted from the object. The amount of infrared radiation differs depending on a material and a surface state. The amount of emitted infrared energy or emissivity may be different even at the same temperature. In addition, the bimetallic surface is usually a metallic luster surface. Therefore, infrared rays emitted from other heat sources in the vicinity of the bimetal, such as a heater, may be reflected on the bimetallic surface. If the reflected light enters into the non-

contact thermometer, a measurement error may occur. Thus, it is preferable that emissivity is high and constant to create an accurate temperature measurement.

Leitl discloses an adjusting device for a thermal trip of a switch gear including a bimetal. The Office Action recognizes that Leitl does not teach at least one part of the surface of the bimetal is made to be black. Applicants respectfully disagree with the Office Action's assertion that Savage overcomes the deficiencies of Leitl. As discussed in MPEP §2141.01(a), to rely on a reference under 35 U.S.C. §103, it must be analogous prior art. Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the application can provide a reason for combining the elements in the manner claimed. Savage is directed to a solar panel wherein the solar heat collecting panel that has a surface exposed to the radiation of the sun is made of a matte black finish to maximize absorption of the sun's radiation. The problem recognized by applicants, providing high and constant emissivity for highly accurate temperature measurement, is completely different than the problem solved by Savage, which is maximizing absorption of solar radiation. Also, the adjusting device for a thermal trip, as disclosed in Leitl, is completely different in structure and function from the solar heat collecting panel of Savage. For these reasons Leitl and Savage are not analogous and the ordinarily skilled artisan in the field of thermal trips would not have looked to the field of solar heat collecting panels.

The Office Action states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Leitl to have a black part as taught by Savage to maximize absorption of heat radiation. However, Leitl does not disclose, and the Examiner has not proffered any reason for Leitl to

want to maximize absorption of heat radiation. Thus, Leitl and Savage, either alone or in combination, do not disclose a bimetal wherein at least one part of the surface of the bimetal is made to be black, as in Applicants' independent claim 1, nor wherein a surface of the temperature measurement part of the bimetal is made to be black, as in Applicants' independent claim 8.

Independent claim 7 is directed to a thermal trip device including a bimetal, wherein a temperature measurement part of the bimetal is provided with a bending part that is substantially perpendicular to a longitudinal direction. Leitl discloses a bimetallic strip 3 which is mounted on a bimetallic strip mount 4. The bimetallic strip 3 does not include a bending part. The portion identified as a bending part by the Examiner in paragraph 4 of the Office Action is not the bimetallic strip 3 but is instead the bimetallic strip mount 4. Thus, Leitl and Savage, either alone or in combination, do not disclose a temperature measurement part of the bimetal provided with a bending part bent substantially perpendicular to a longitudinal direction as in Applicants' independent claim 7.

The dependent claims are allowable for at least the reasons discussed above, as well as for the individual features they recite.

Early and favorable action with respect to this application is respectfully requested.

Should the Examiner have any questions regarding this Amendment or the application in general, he is invited to contact the undersigned at the number provided below.

Respectfully submitted,

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